

Open Access Publishing: Opportunities and Challenges

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There has been something of a revolution happening in peer-reviewed publishing. Traditional subscription-based journals in their printed form are no longer the only avenue for making a lasting contribution to the literature. Instead, optometric educators, clinicians, vision scientists and other health-care practitioners – even our students -- have an increasing number of opportunities to publish their work in an open access forum. What is open access? Simply stated, open access is the immediate, online, no-cost availability of scholarly articles, which unlocks them for everyone to use. (Figure 1)

The use of open access has been increasing exponentially, as can be seen in Figure 2. One of the success stories in open access is *Optometry & Visual Performance*, which evolved from two U.S. print publications, the *Journal of Behavioral Optometry* and *Optometry & Vision Development*. *Optometric Education* is also an example of a successful open-access journal. Both *Optometry & Visual Performance* and *Optometric Education* are categorized as “gold” open access publishing, which means they are immediately available on their publishers’ Web sites.

Open access should not be confused with Creative Commons licensing. While open access is the no-cost sharing of scholarly information, the copyright of these manuscripts is owned by the journal itself. Creative Commons licensing is “devoted to expanding the range of creative works available for oth-

ers to build upon legally and to share.” (Wikipedia) Optometric educators may choose to apply this to self-published works, such as a podcast of their lectures. Stipulations can be included to protect against these works being altered or sold. For example, I use the Creative Commons, non-commercial, no-derivatives license when I upload a video podcast to iTunes University on a public channel, like those you’ll see here with a guest login: www.pacificu.edu/itunesu.

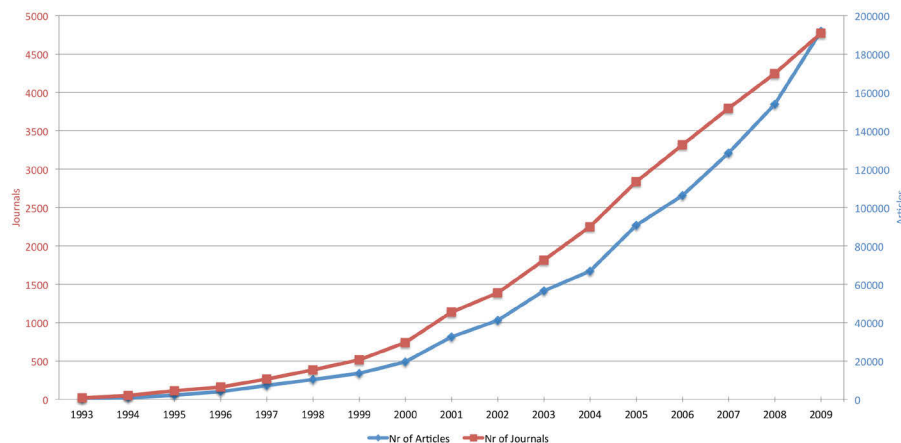
The Rise of Open Access

The availability of desktop publishing methods and widespread access to high-speed Internet have made the movement toward open access possible. The shift has also been fueled by the increasing cost of institutional subscriptions to print journals, which has rapidly outpaced the rate of inflation.

Figure 1
The open lock symbol, created by the Public Library of Science (PLOS), has come to represent the open access concept.



Figure 2
Development of Open Access, 1993-2009



(Source: http://en.wikipedia.org/wiki/Open_Access)

Institutional subscriptions often cost at least \$1,000 per year and sometimes in excess of \$10,000. Publishers sometimes bundle electronic access to their journal titles, but they typically costs many times the print subscription. It works much like cable television packages. Subscribers may desire access to only a few channels (i.e., journals) but must purchase all of them as a bundle.

The difference, besides orders of magnitude in the annual price, is that unlike TV, the content of journals was produced by the subscribers themselves. Individual non-subscribers to traditional print journals can usually access articles a la carte. However, as all online researchers know, a “paywall” often blocks online access to articles beyond their abstracts. The paywalls can be high. They are typically at least \$25 per article, which must be paid before the article is read. If the article turns out to be not what the reader was looking for, sorry, there are no returns. These rising costs, for both institutions and individuals, are creating a crisis in affordable access to knowledge.

Similarities and Differences Between Open Access and Traditional Publication

In addition to the cost of access and availability of knowledge, the issue of traditional print subscriptions vs. open access involves other considerations. The peer-review process, which provides crucial feedback for strengthening the manuscripts that are fit for publication and rejecting those that are not, is available in both open access and traditional print journals. This keeps the quality of the journals high and provides readers with an impressive array of research and educational and clinical knowledge to put into practice.

Another similarity of both publication models is that authors sign away rights to their work, often for at least a year from publication, when the value of the new knowledge is highest. This may be a fair trade-off for up-and-coming researchers seeking to add to their professional credentials. It also helps the journals to retain their value. In addition, some researchers, including optometric educators seeking tenure and promotion, maintain that publishing in a reputable scientific journal is vital to

advancing the academic career.

Note that there are some open-access repositories that are not peer-reviewed, and allow for very rapid publication. While excellent for rapid dissemination of emerging knowledge, this non-reviewed publication model raises the question of whether it carries the same intellectual gravitas as peer-reviewed periodicals. Journals that transition from traditional print to open access, like *Optometric Education* and *Optometry & Visual Performance*, are peer reviewed the same way as always. In fact, the latter journal publishes simultaneously online and on paper.

Open access does provide some significant advantages in accessibility. A 2008 study revealed that mental health professionals are about twice as likely to read and act on evidence in the literature when it is made available under open access.¹ In the same year, a paper in the *British Medical Journal* noted that open-access publications received 89% more full-text downloads, 42% more PDF downloads and 23% more unique visitors.² They also carried an advantage in number of citations, but it only lasted for the first 12 months after publication. After that time period, citations were similar to those within the traditional publication model. Keep in mind that one year is the typical blackout period for a subscription-based publication to have exclusive rights to a manuscript.

Certainly, online publishing provides advantages in regard to the environment, portability, color images and video and swift correction of errors. A potential benefit to researchers is that more people can access their work. It is not difficult to see the potential advantages for optometric educators and students as well.

Educators are acutely aware that optometry is a rapidly-evolving discipline and that courses and clinical knowledge must be kept up-to-date. Constant changes in health care make a static lecture that changes little from year to year of diminishing value to students. Aging books and other monographs, while very worthwhile for foundational knowledge, cannot keep up with the rapid changes. We do have an enviable level of access to e-journals and databases through our excellent vision science libraries, but the traditional journal publication model is slow for the digital age. It takes weeks or months for a

manuscript to be revised to pass peer review and reach the public. While quality research and writing take time, it seems increasingly incongruent with the 21st century to wait so long for publication of journals, particularly for people with limited access to the knowledge they contain. Also, negative results, however valuable, are generally less likely than positive results to be published, even if many are not repeatable. The hope is that the discovery of new knowledge will happen faster under the open-access model.

Students, who are often unable to afford paying for access, gain great advantage when information is available freely. It enables them to read complete publications for themselves, which helps them to maintain the evidence basis for what they are being taught. They can even contribute to the knowledge pool easier under this model. A related benefit is that misuse of abstract-only references is less likely. Overall, the open-access model can assist healthcare education in becoming less eminence-based and more evidence-based, as the knowledge base is easier for all to find and peruse.

Even with all its potential benefits, open access has not been immune to criticism. For example, when gold open access to content is provided directly from a publisher's Web site, everyone with an Internet connection can read and cite that content. However, this does not solve the problem of authors being required to release the rights to their intellectual property so that everyone else — including their own institutions — must pay to access it. This is where “green” open access comes in.

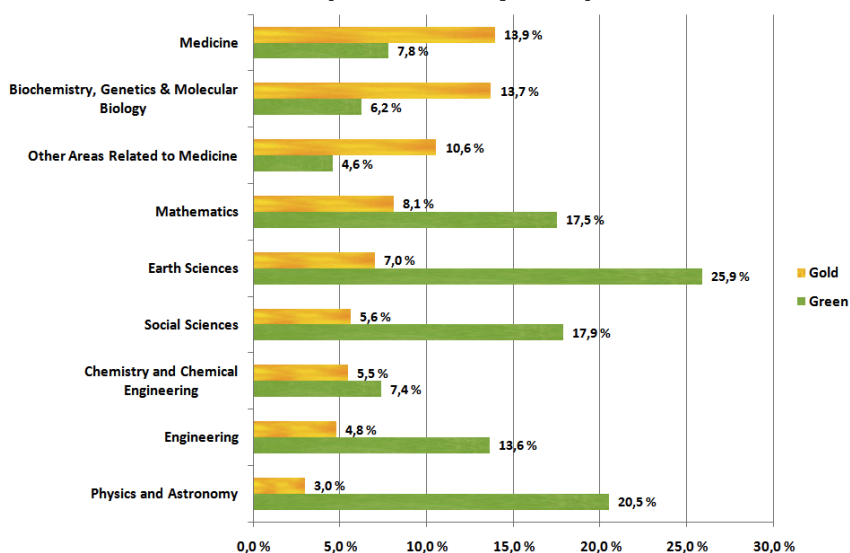
Green open access often takes the form of an institutional repository through the library of a school, college or university. For instance, at Pacific University we make use of “CommonKnowledge” to place the manuscripts written by our faculty and students into the sea of knowledge. With the slogan “Common Access, Uncommon Knowledge,” this repository is crawled by Google, and is thus easily searchable by everyone. Like other institutional repositories, it can also be searched directly and freely accessed at <http://commons.pacificu.edu>. The papers in this repository are clearly marked as to which are peer-reviewed and which are not, although sometimes CommonKnowledge is the

first stop for a new manuscript on its way to such a review. In addition to access, the green approach may help to prevent the idea loss that concerns some authors, particularly those whose manuscripts have been rejected by masked peer review. The increasing use of both gold and green open access by discipline is illustrated in **Figure 3**.

An argument that has been made against open access is that it shifts the burden of payment from subscribers to authors. Indeed, some open-access journals do charge authors a fee to publish. This raises obvious conflicts of interest, especially with regard to access by less affluent authors. However, it does recognize the financial realities that publishing without income from subscribers, or advertisers, becomes a labor of love for the publishers. I know this from my personal experience editing the open-access journal *Health and Interprofessional Practice* (<http://commons.pacificu.edu/hip/>).

A more equitable model may be to charge to receive peer review. In this model, the peer reviewers are paid for the work that many do as volunteers, in order to better their professions and themselves. To address the objection that authors from less-affluent areas might have less access, some have suggested that the funds libraries would save from the current subscription model could help fund gold open access peer-review fees. Others have strongly objected to this shift, believing that paying for gold open access simply delays the inevitable switch to the more sustainable green open access.³

Figure 3
Gold and Green Open Access by Discipline in 2009



(Source: http://en.wikipedia.org/wiki/Open_Access)

The Future is Here

While subscription-based online (gold open access) and institutional-based repository (green open access) will likely co-exist into the foreseeable future, both models are the future of knowledge dissemination. Issues at the center of this transition include financial sustainability, peer review, and intellectual property rights. But it is access to information by our patients, students and peers that ultimately make open access a powerful publication model that optometric educators cannot ignore.

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★ 2013 EDUCATIONAL STARTER GRANTS ★



The Starter Grants for Educational Research, which are offered by the Association of Schools and Colleges of Optometry (ASCO) and funded by Vistakon, division of Johnson & Johnson Vision Care, Inc., have been awarded since 2011. Each year, ASCO has received an increasing number of grant proposals. This year, 18 grant proposals representing 11 optometric institutions were submitted. The expanding response to the grant program indicates to me an exciting interest

in educational research among optometric faculty, who are committed to improving teaching and learning and moving the profession forward. I applaud all faculty who submitted proposals this year. Going forward, I will work to increase grant funding to better support and acknowledge the hard work and interests of optometric faculty.

Congratulations to the recipients of the 2013 Starter Grants for Educational Research:

- Dr. Lawrence Stark, Southern California College of Optometry at Marshall B. Ketchum University (Communicating Educational Objectives in an Optometry Course)
- Drs. Meredith Whiteside, Dennis Fong and Robert DiMartino, University of California - Berkeley School of Optometry (Getting Ready for ObamaCare: Test of a Blended Method for Teaching Medical Coding)
- Drs. Robert DiMartino and Pia Hoenig, University of California - Berkeley School of Optometry (Flipping the Classroom - Using the Internet for Content and Classroom Contact Time for Application)
- Dr. Lorne Yudcovitch, Pacific University College of Optometry (Case-Based Student Performance: Socratic Method vs. Passive Presentation).

— Aurora Denial, OD, FAAO, Editor, *Optometric Education*